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REPORT OF THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION TO THE 104TH OHIO GENERAL ASSEMBLY.

OHIO EDUCATIONAL TV NETWORK COMMISSION, COLUMBUS

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CREATED IN 1960 TO CONDUCT FEASIBILITY STUDIES FOR A STATEWIDE EDUCATIONAL TV NETWORK, THIS INTERIM STUDY COMMISSION NOW RECOMMENDS CREATION OF AN EDUCATIONAL TV NETWORK COMMISSION AUTHORIZED TO ACTUALLY ESTABLISH THE NETWORK. THIS RECOMMENDATION INCLUDES PROVISIONS FOR EDUCATIONAL TV TRANSMISSION, FACILITIES, OWNERSHIP, PROGRAMMING, STANDARDS, AND FUNDING. THE INTERIM COMMISSION HAD ALSO ORDERED AN ENGINEERING SURVEY TO INVESTIGATE EXISTING FACILITIES AND TECHNICAL ASPECTS OF THE NETWORK. A SEPARATE ADDENDUM TO THIS REPORT DATED 1963 LISTS THE RESULTS OF THIS SURVEY AND RECOMMENDS ESTABLISHMENT OF THE NETWORK IN 4 TWO-YEAR PHASES. THE FINAL NETWORK OF 29 TRANSMITTING STATIONS AND 11 PRODUCING STUDIOS WOULD BE FLEXIBLE ENOUGH TO PERMIT FUTURE MODIFICATIONS. THE MAIN REPORT SUMMARIZES THE VALUE AND USES OF EDUCATIONAL TV BASED ON INFORMATION GATHERED BY THE COMMISSION FROM EDUCATIONAL INSTITUTIONS, STATE GOVERNMENT AGENCIES, AND FROM 4 EXISTING EDUCATIONAL TV STATIONS IN OHIO. FOUR APPENDICES TO THE REPORT LIST THE LEGISLATIVE ACT CREATING THE INTERIM COMMISSION, SPECIFICATIONS FOR THE ENGINEERING STUDY, A LIST OF TV BROADCASTING EQUIFMENT IN OHIO UNIVERSITIES AND COMMUNITIES, AND INFORMATION REGARDING COMMUNICATION IN STATE GOVERNMENT AGENCIES. SEVEN MAPS ARE INCLUDED. THIS REPORT IS DISTRIBUTED BY THE NATIONAL ASSOCIATION OF EDUCATIONAL BROADCASTERS. (LH)

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REPORT OF THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION

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PREFACE

In 1952, the Federal Communications Commission established a new kind of broadcasting licensee, the non-commercial educational television station, and reserved 259 television channels (87 VHF, 172 UHF) for the exclusive use of schools, educational corporations, colleges and universities. While WOI-TV in 1950 was the first educationally-owned station to go on the air in the United States, it was licensed as a commercial station under the old FCC category. First educational non-commercial station in the new category was KUHT at the University of Houston in 1953. As of February, 1961, there are 54 such stations, variously owned by boards of education, non-profit community corporations, colleges, universities and state network authorities. It is estimated by the end of this year twelve to fourteen more will be added to the list. These stations are providing each week more than two thousand hours of systematic and supplementary instruction for credit for use in the schools and on the campus, and other educational and informational materials, not otherwise available, to a potential audience of U. S. adults and children, in and out of school, totalling 26,000,000.

Since 1952, thirty-two states have enacted legislation and appropriated funds designed to encourage or actually enable the use of television in education. Seven states, including Ohio, have passed legislation making it possible for schools to spend money for use of and participation in educational television. Four states (Alabama, Florida, North Carolina, Oklahoma) are operating educational television networks. Five states (Georgia, Kansas, Oregon, Maine, South Carolina) have completed or are in the process of developing state-wide networks. Plans for a five-state network (Massachusetts, Maine, New Hampshire, New York, Pennsylvania), a six-state mid-west network (Iowa, Minnesota, Nebraska, North Dakota, South Dakota, Wisconsin), and a thirteen-state network under the auspices of the Southern Regional Educational Board, have been drafted.

More than four hundred educational closed circuit television installations are in regular instructional use by schools, colleges, universities, and the armed services. Some embrace county-wide and campus-wide areas. In 1960 at least one thousand school districts and more than three hundred and fifty institutions of higher education used television in some form as an instrument of instruction.

During its ten-year history the fact has been well established through research and experimentation that through educational television, people of all ages and educational levels may be taught, informed and inspired. There is no longer any question that television, used skillfully, is an effective medium for extending and making more widely useful the educational and cultural resources of a community, state or nation. These resources, once available to the limited few, may now be extended at little per person cost to millions.

In an address before the National Association of Educational Broadcasters, John L. Burns, President of the Radio Corporation of America and a former university professor, said:

The quality of education can be greatly upgraded by modern technology, while costs can be lowered and the increase in students can be taken care of at the same time.

The advent of new electronic tools, especially closed-circuit TV and its future derivatives, makes possible an advance in methods of education comparable to that made possible by the invention of the printing press in the Fifteenth Century.

Indeed, it is an advance which can be even greater than the development of the atomic reactor. The atomic reaction is an explosion of a material kind. The education explosion, which can be made possible by our new electronic tools, is an explosion in thinking—affecting men's minds.

This report, growing out of a study which has covered twelve months, is concerned with the potentialities, possibilities, and plans for a state-wide educational television network for Ohio and its nearly ten million adults and children.

INTRODUCTION

The 103rd General Assembly of Ohio passed Amended Substitute Senate Bill No. 435 (see Appendix I), proposed by Senators Gray (R. Piqua), Ocasek (D. Northfield), Porter (D. Gallipolis), and Shaw (R. Columbus), creating the Ohio Interim Educational Television Study Commission, charged with the dual responsibility of:

> **. . . conducting an engineering study, and such other studies as may be necessary, to determine the feasibility, the costs, and the requirements for establishing and providing state-wide educational television network services whereby the educational television programs, station facilities, and channels, now in use or obtainable, may be made available to every Ohio citizen in and out of school.**

and exploring:

> **. . . with other state agencies, such as the departments of highways, highway safety, and natural resources which have or may have needs for state-wide interconnected broadcasting facilities, the feasibility of developing a single state-wide system of interconnection for joint cooperative use.**

In February, 1960, Governor Michael V. DiSalle appointed a nine-member commission composed of:

David Bergstrom, *Professor of Biology and Television Instructor over WMUB-TV, Miami University.*

Novice G. Fawcett, *President, The Ohio State University and Chairman of the Radio-Television Committee, Association of Land Grant Colleges.*

Senator Theodore M. Gray, *Piqua, Ohio.*

E. E. Holt, *State Superintendent of Public Instruction and Vice-Chairman Mid-West Project on Airborne Television Instruction.*

Richard B. Hull, *President, Ohio Council on Educational Television and Director, Ohio State University Telecommunications Center.*

Vincent J. Jukes, *Director of Radio, Television, and Audio-Visual Services, Ohio University and Resource Chairman, NEA Department of Audio-Visual Instruction, Washington, D. C.*

Allen Land, *General Manager, WHIZ-TV, Southern Television System, Zanesville, Ohio, and member of Ohio Association of Broadcasters.*

Senator Oliver Ocasek, *Northfield, Ohio.*

The Very Reverend Paul L. O'Connor, S.J., *President, Xavier University and Member of the Board, Greater Cincinnati Television Educational Foundation.*

The newly created Commission met on February 1, 1960, electing officers and an Executive Committee, comprised of Superintendent E. E. Holt, Richard B. Hull and Allen Land.

FIRST-HAND STUDY OF EDUCATIONAL TV

Initial network studies were carried out directly by the Commission aided by consultants, including Dr. Glenn Starlin, Director of the Inter-Institutional Television Teaching Project of the Oregon System of Higher Education; Dr. Richard M. Mall, Assistant to the President, People's Broadcasting Corporation; and R. J. Rockwell, Vice President and Director of Engineering, Crosley Broadcasting Corporation.

In addition, several members of the Commission were able to make first hand studies of educational television developments. Senators Gray and Ocasek examined educational television station WQED in Pittsburgh, the county-wide closed circuit television system in Washington County, Maryland, and interviewed communications attorneys and television engineers in Washington, D. C. Professor Bergstrom made a study of the Florida Educational Television Commission and its networking arrangements with colleges, junior colleges and public schools.

Chairman Holt and Vice Chairman Hull, because of travel resources provided by non-state agencies, were able to study educational television station developments in San Francisco, Minneapolis and Chicago, as well as to meet with state and regional network planners for the states of New Hampshire, Iowa, Maine, Massachusetts, Minnesota, Nebraska, North Dakota, South Dakota and Wisconsin.

In May, 1960, an Executive Secretary and an Associate Secretary were employed to supervise further studies and to begin preparation on the Commission report. Mr. Graydon Ausmus, Director of Radio and Television at the University of Alabama, member of the Program Board of the Alabama Educational Television Network, and Past President of the National Association of Educational Broadcasters, was employed as Executive Secretary. Mr. Kenneth Hobbs, formerly Director of Instructional Television at Auburn University and Executive Secretary of the Ohio Academy of Science, was employed as Associate Secretary. An office was established at 415 Ohio Departments Building, and a secretary employed.

ENGINEERING CONSULTANTS

The Commission drafted detailed specifications for the engineering study (See Appendix II) and began a search for an engineering firm to supervise this phase of the project. After consideration of a number of consultant organizations, the internationally-known firm of Jansky & Bailey in Washington, D. C. was engaged. Jansky & Bailey had conducted educational television network studies for the states of Iowa and Maine and state agency communications studies for the state of Maryland. Mr. C. M. Jansky designed and built the first educational radio station in the United States, WHA, at the University of Wisconsin, and planned the state-wide radio network there.

LEGAL CONSULTANTS

The firm of Cohn and Marks, attorneys practicing before the Federal Communications Commission in Washington, D. C. were engaged to advise on legal matters. Cohn and Marks have served many educational and radio agencies including Iowa State University, the City of New York and the University of Oklahoma.

SOURCES OF DATA

The Consulting Engineers, the Executive Secretary and the Associate Secretary, working together or individually, spent several months collecting background data from two major sources: educational institutions and groups, and departments and divisions of state government, as a basis for developing plans for a state-wide educational network for use by educational institutions on all levels and agencies and departments of state government.

TELEVISION AS AN EDUCATIONAL TOOL

"Teaching by Television," a 1961 report by the Fund for the Advancement of Education and the Ford Foundation, suggests that television experiments it describes, may well mark "the beginning of a new era in American education." The use of television for teaching may still be novel to some, yet the experiments listed involve more than fifty colleges and universities, 250 school systems and more than 300,000 students and their teachers. It is estimated that in this current year about 7,500 elementary and secondary schools are offering some instruction by television from educational television stations to around 3,000,000 pupils. These figures do not include students receiving their television lessons over commercial television stations or by closed circuit television.

RAPID RISE IN STUDENTS

During the last four or five years, schools and institutions of higher education have been conducting an intensive search for new and better ways of providing an education for the nation's young people. In part, this ferment has been stimulated by the unprecedented increase in the number of boys and girls to be educated. Since the end of World War II, the number of births has risen more than fifty per cent, and each year for the past five years, it has hovered around the 4,000,000 mark or *one and one half times* the level of the depression decade of the thirties. Enrollments have risen steadily at all levels of education, and educators now know this is not a temporary situation but a permanent problem—and opportunity—which will be with us for the foreseeable future.

SHORTAGE OF QUALIFIED TEACHERS, FACILITIES

Along with the rapid rise in student numbers there has been an acute shortage of able teachers. Since the war the number of new college graduates entering teaching has not kept pace with the increase in students, and the number of poorly-qualified or temporarily-certificated teachers has been alarmingly high. The problem now exists on the college level as well as in the schools. One population authority has said that unless new methods are devised, colleges and universities might have to *double* their faculties and facilities during the next ten years. This total problem has spurred many educators to seek new ways of *multiplying the effectiveness* of *good* teachers lest a whole generation of young Americans "become short-changed in their education and in turn short-change future generations when they themselves become teachers." Television appears to be one of the most promising ways of multiplying this educational resource and of making possible greater economies and efficiencies in education.

The Ohio Commission on Education Beyond the High School in its December, 1959 report to Governor William O'Neill stated:

> There is widespread belief that the pattern of the past in education beyond the high school need not necessarily be a model for the future.
>
> *Probably none of the current proposals for educational improvement offers more potential for serving well in the broad field of adult education as well as for conventional instructional purposes than that of a closely-knit, state-wide educational television network.*
>
> *Financed by state funds this medium could serve many schools and colleges at great economy to all concerned.*

USES OF A STATE-WIDE EDUCATIONAL TELEVISION NETWORK BY THE ELEMENTARY AND SECONDARY SCHOOLS OF OHIO

Ohio elementary and secondary schools are comparable with schools in most other states with respect to per pupil support, teacher-pupil ratio, certification of teachers, equipment and buildings. The problems Ohio faces now and in the future are also comparable: increasing student numbers, new building needs, a shortage of qualified teachers, demands for higher standards in the sciences, mathematics, language, and other subjects, all of which are underlined in terms of national security. Many authorities feel televi-

sion can make a substantial contribution to many of these areas in terms of efficiency and quality, not only by multiplying the effectiveness of the teacher but by relieving her from certain routines.

EDUCATIONAL TV EXPERIMENTATION

Experimentation in the educational uses of television was developed in Ohio as early as 1950 when Western Reserve University pioneered the "telecourse." Dr. Claude Courter, former superintendent of schools in Cincinnati, who in 1954 foresaw the shortage of high school science teachers, was one of the pioneers in the teaching of chemistry by television.

TV LESSONS STRENGTHEN ELEMENTARY SCHOOLS

At the present time many Ohio teachers, principals, supervisors and State Department of Public Instruction personnel believe that television lessons in science, mathematics, arts, remedial reading, literature and foreign languages would strengthen the program for the elementary schools of the state. Special aid is needed for the very bright and the very slow pupils in many schools. Others have expressed the opinion that teaching some of the hard-core drill and basic instructional materials by television would give the classroom teacher more time for lesson preparation and special attention to individual pupil problems.

TV SUPPLEMENTS HIGH SCHOOL OFFERINGS

On the secondary level, Ohio history, geography and civics, taught through television by people who have specialized in these subjects and made vivid by films and other specially prepared visual materials not available to the regular classroom teacher, could greatly raise standards. Enrichment material for standard subjects: history, foreign language, mathematics, English and the sciences, would add significance and reinforcement to regular teachers. In schools where it is difficult or impossible to secure well-qualified teachers, the availability by television of complete course sequences could make the difference between mediocre and superior instruction.

IN-SERVICE TRAINING FOR TEACHERS

Today whatever his age or grade level, the child is required to know more and more about an increasing number of subjects and to acquire new mastery of basic subject matter. Never before has it been so necessary for the teacher herself to keep constantly ahead of changing and growing pupil needs. A state-wide educational service can provide significant in-service training for teachers on the job in Ohio as has already been demonstrated in Iowa, Texas and in other areas.

RESEARCH RESULTS

In the brief ten-year history of educational television there has been an enormous amount of experimentation and research in elementary, secondary and higher education. The National Program in the Use of Television in the Public Schools, co-supported by the Fund for the Advancement of Education and cooperating boards of education and colleges, involving cities and rural areas from coast to coast, is now in its fourth year. Results of these and many other experiments show among other things that:

1. Students at both the school and college level learn as much—and in some cases significantly more—from televised instruction as from conventional instruction.

2. Usual finding is that no significant difference exists between students in television classes and comparable students in regular classes—a remarkable finding in view of the newness of television and the relative inexperience of those using it.

TV EFFECTS EFFICIENCIES, ECONOMIES IN TEACHER TIME

In general, television courses have been much more carefully planned and organized than conventional classes, and the combination of skills of the studio teacher and the classroom teacher has made possible a cooperative teaching effort far better than either teacher could achieve alone. There has been a more effective use of teaching time and classroom space, especially notable in the secondary and elementary schools where the shortage of classrooms and teachers has been most marked. Several school systems including Miami, Florida and Washington County, Maryland have found the use of television in teaching large classes has let them serve more students with the able teachers on their staff and to get along with fewer teachers than they otherwise might need. Several other school systems have used the teacher time saved by the use of television in large classes to establish much smaller classes than usual for slow learners and rapid learners and to provide overworked classroom teachers with one or more free periods during the day. There have also been problems. For instance, most of today's school buildings were not designed to accommodate television, and there are problems in handling the individual differences among students especially at the elementary level.

WHERE TV IMPROVED QUALITY OF EDUCATION

The Hagerstown, Maryland three-year experiment in which all the schools in the county were involved in a gigantic experiment in teaching by television, has produced other significant results. According to a report on this project by John L. Burns in a recent issue of "National Parent-Teacher," 26,000 students tested in 1958 and 70,000 in 1959 showed marks of the television students to be as good as, and in a significant number of cases, better than those of the non-television group. Furthermore, after three years, the teachers voted 9 to 1 that it improved the quality of education, and the parents were in favor of it by a similar ratio.

Mr. Burns reports that in the areas of art and music in the Hagerstown experiment, television has made possible a reduction in the per-student cost of teaching these two courses from $16.78 to $1.71.

TV MAKES NEW COURSES AVAILABLE

Many school systems are using television to make available to the schools superior teachers in subjects in which no teacher is available. In Alabama, full courses in Spanish, French, Russian, chemistry, biology, physics, history and civics have been provided through a state-wide educational television network to hundreds of schools, and full credits have been approved by the State Department of Education for students passing these courses regardless of the certification of the classroom teacher. Many children have been able to present college entrance credits in these subjects because of this availability. Other states and communities have provided similar opportunities in these and other subjects.

"TV ONE OF THE BEST HOPES"

Regardless of the uses which will be made of educational television in Ohio, it has been demonstrated that teachers can teach and pupils can learn almost any subject by television. The medium will have wide application

in this state and in others as more is known of its best and most effective uses as a tool of teachers and of teaching. As Mr. Burns pointed out, ". . . it is one of the best hopes this country has for solving some of its most pressing problems."

USES OF A STATE-WIDE EDUCATIONAL TELEVISION NETWORK BY INSTITUTIONS OF HIGHER EDUCATION

SHARING STATE EDUCATIONAL RESOURCES

The fifty-six institutions of higher education in Ohio—public, private and municipal—face enormous problems during the next decade in terms of almost doubled student enrollments, a shortage of qualified instructors, and new demands in terms of both the quality and quantity of the instructional load. Television could be an important factor in placing a "quality floor" under the instructional program of higher education, particularly during the first two years, and especially as it can assist to support and supplement the branch college programs of the state universities. Television could also become an important way of sharing and exchanging educational personnel and resource between the private and state-supported institutions.

Commission members and staff in conducting this study met with representatives of the Ohio College Association, the Inter-University Council of State Universities, visited and conferred with officials on the campuses of both public and private institutions. Particular attention was paid to those areas of the state where the Federal Communications Commission has reserved an educational non-commercial television channel and those institutions now operating a station (WCET, WOSU-TV, WMUB-TV, WGTE-TV), planning a station (PLN), or operating a closed circuit television installation, as noted hereafter (CCTV).

VISITATION OF EDUCATIONAL INSTITUTIONS

In each of these areas an attempt was made to talk with administrators of the principal agencies of elementary, secondary and higher education, with supervisors of educational broadcasting, both radio and television, and with community leaders. Two general types of information were sought: (1) nature of television studio and transmission facilities on hand or ordered; and (2) attitudes toward and interest in an Ohio educational television network. (For a detailed listing of equipment see Appendix III.) A list of visitations follows.

University of Akron.....CCTV
Bowling Green State Univ.....CCTV
Cleveland Educ. Research Bur.....
Cleveland Public Schools.....
Cleveland TV Educ. Assn.....PLN
University of Dayton.....CCTV
Denison University .....
Cincinnati TV Educ.
Fndtn. .....WCET
Kent State University.....CCTV
Miami University .....CCTV,
WMUB-TV

Miami Valley ETV Fndtn.....PLN
Newark Public Schools.....PLN
Ohio State University.....CCTV, WOSU-TV
Ohio University .....PLN
Ohio Wesleyan University....CCTV
Toledo ETV Fndtn.....WGTE-TV
University of Toledo.....CCTV

OHIO ETV. FACILITIES, PERSONNEL

It is evident that Ohio has made a good start in educational television—more than a beginning. Four ETV stations are on the air and four additional stations are in advanced stages of planning. Eight institutions operate closed circuit television systems with one institution operating six CCTV systems of varying sizes.

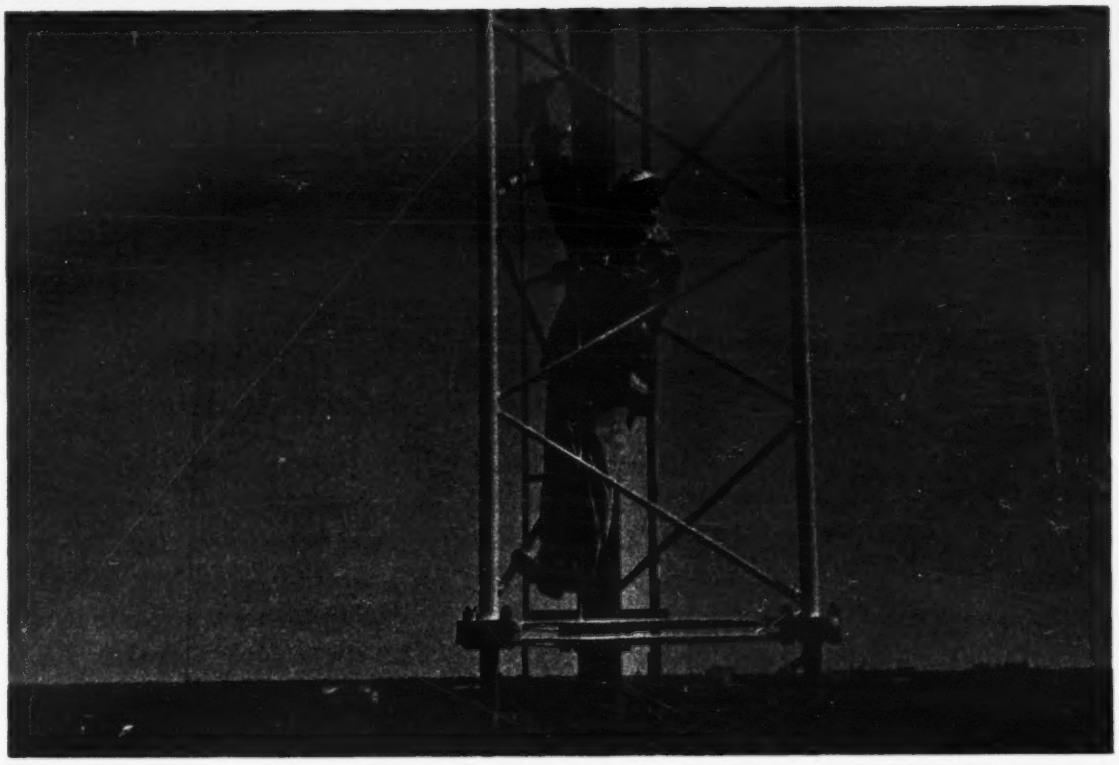
"A TYPICAL EDUCATIONAL TELEVISION PRODUCTION CENTER IN OHIO."

While all stations, with the exception of WOSU-TV at Ohio State University, operate with inadequate power, studio facilities and personnel for both CCTV and broadcast television for the most part are excellent, but adequate financing is a problem. (After visits were completed, plans for a new ETV station at Youngstown were announced and CCTV installations reported at Case Institute and Central State College.) All four on-the-air stations are now exchanging programs by kinescope film and video tape. Institutions operating stations and CCTV installations and those planning such systems are linked together in a "self-help" organization called the Ohio Council on Educational Television.

OHIO ETV CHANNELS

While all Ohio ETV channel assignments by the FCC, present and future, are in the Ultra High Frequency band (UHF) and require adapters or all-wave television sets to be received, substantial growth progress in the number of UHF sets is reported by all four operating stations. In Columbus, for instance, the UHF receiver count has gone from several hundred to 40,000 in a four-year period and in Cincinnati over a five year period from 1,500 to 35,000. Thirty school systems and colleges in Central Ohio are equipped to receive UHF television instruction and more than 45 school systems and colleges in Southwestern Ohio. Of the fifty-four ETV stations operating nationally, 15 have UHF frequencies including such cities as Atlanta, Detroit and Philadelphia. Eight Ohio commercial television stations operate on UHF frequencies, and one area (Youngstown) is served almost exclusively by four UHF stations with all viewers equipped to receive them. FCC Commissioner Robert E. Lee believes all television transmission will ultimately be in the UHF, not the VHF, spectrum and in a recent speech urged educators to secure channel assignments now while space is available.

Educational administrators, teachers, community leaders and lay persons were enthusiastic about the possibilities of educational television as a new kind of tool for formal education as well as a unique cultural and informational resources for the community. Each group saw in a state-wide network the opportunity for distribution and exchange throughout the state of the special resources of each educational institution and community. Station operators and those planning stations saw the opportunity through network distribution to use resources from other institutions and communities which would enrich their offerings and greatly expand their schedules at little additional cost. Distinguished faculty members from the many outstanding colleges and universities could in effect by network interchange become members of the faculties of each of the others and the fireside teachers for millions of homes throughout the state.



"MICROWAVE RELAY POINTS WILL HELP TO DISTRIBUTE TELEVISION SIGNALS FROM ETV STATIONS THROUGHOUT OHIO."

In Oregon four institutions of higher education operate originating television studios, linked by microwave to KOAC-TV, a broadcast transmitter in Corvallis, which can be received by each of them. An outstanding instructor in chemistry at Oregon State College thus provides simultaneous lectures and demonstrations to viewing students in classrooms at the University of Oregon, the Oregon College of Education, Willamette University and to his own campus. A course in educational testing may originate at the Oregon College of Education or a course in psychology at the University of Oregon. Through this method the best instruction available in any given area can be provided to each of the four institutions and less experienced instructors who monitor receiving rooms and laboratories have the opportunity to learn from a senior instructor.

At the University of Houston, large enrollment lecture demonstration courses are taught by television over the university station, KUHT. Students view at home and report to only one campus lesson each week in small groups. By this method one professor and three instructors handle an instructional load of twenty-five sections with almost eight hundred students in a single course. Each student is taught twice weekly by an outstanding department member. The university reports this plan results in saving one hundred and twenty hours per week for students in the first two years of university work.

Chicago City Junior College using educational television station WTTW has completed a three-year experiment teaching credit courses by television. During this period nearly 7,500 students enrolled for a total of nearly 14,000 credit course hours. In addition there were 33,500 non-credit registrations. Conclusions: (1) classroom standards of instruction can be maintained in television teaching; (2) students learn as well or better; (3) equal credit should be awarded for classroom and television courses; (4) older students are more highly motivated in television courses, are more likely to make higher ratings; and (5) the television method has implications for long-term junior college building plans.

The same opportunities are available to Ohio and considerable exploration of the possibilities is already under way. For instance, Western Reserve has been teaching credit courses over commercial station WEWS for years, with credit and non-credit enrollments ranging on occasion as high as 70,000. Ohio University, using its recently installed CCTV facilities, during the 1959-60 academic year presented courses for the College of Fine Arts and the College of Commerce. Eighteen faculty members, ten graduate assistants and twenty-five undergraduates helped plan and produce more than 177 lectures, demonstrations and special lessons. Twenty thousand student viewers watched these programs. Courses are recorded on film and repeated. During the same academic year the University of Dayton using its CCTV facilities offered a total of ten courses ranging from Introduction to Business to American Literature to 1,560 regularly enrolled students who viewed in classrooms.

Miami University at Oxford using both its CCTV facilities and WMUB-TV during 1959-60 offered three television courses for the university including Principles of Animal Biology in which new techniques were developed. In addition, three non-credit courses were offered including a highly useful

sequence on "How to Study" offered by the Miami Counseling Service. Plans for televised extension courses are in preparation.

At Ohio State University WOSU-TV is used to transmit remedial and university credit courses to viewing classes on the Columbus campus and in the branch centers at Marion and Newark. During the 1959 academic year 3,370 first-year students or 48 per cent of the 7,000 freshman enrollees took one or both of two courses, Mathematics 400 and Health Education 400, by television. Courses scheduled for presentation during the current academic year include General Psychology, Zoology, and Mathematics. Expected television course enrollments for 1960-61 will total 4,100. It is expected this activity will increase as branch centers and central campus needs expand. Courses are recorded on kinescope film or video tape for repeated use.

These developments typify the growing activity in television instruction around the state. Many administrators see the state-wide television network as a highly promising method of providing quality instruction in several areas of the curriculum to the twenty-seven branch university centers which the state universities now operate. In turn some private institutions believe the state network will provide a method whereby mutual exchanges of educational resource can occur between and among Ohio colleges and universities. In essence, the television network by using a highly skilled "television faculty" whose plan of work is integrated with the individual needs and wants of each institution, could provide a "quality floor" in the face of high enrollments for the first two years of college and university work.

ADULT EDUCATION AND A STATE-WIDE EDUCATIONAL TELEVISION NETWORK

More than 97 per cent of Ohio's residents are within 25 miles of a college or university. Together these fifty-six institutions serve 160,000 students and during the decade to come may serve more than twice this number with the continuing excellence which has grown to be a hallmark of higher education in this state.

Whether the figure is 160,000 or 300,000 or 500,000, these numbers still represent a fractional amount of the 10,000,00 citizens who inhabit this state. For hundreds of thousands of people, despite their geographical adjacency to a college or university, enrollment on a regular or special basis is impossible for many reasons. Yet the need for continuing adult education, for a lifetime of learning, formal or informal, is an increasing imperative for economic success or individual satisfaction and democratic survival. At no time in man's history has he needed to know so much so quickly about so many things, and more importantly, to understand the meanings of what he learns.

Each of the universities in the state is seeking to feed the growing appetite for short courses, lecturers, conferences, professional upgrading seminars, refresher courses and cultural entertainment. The demand, which has reached staggering proportions, covers almost every field of endeavor and interest with which the farmer, the laborer, the banker, the industrialist,

the business and professional man may be involved or concerned. Institutionally and non-institutionally-centered resources are in demand as never before, and furthermore the needs and the demands are growing each year for subject matter whose content may extend from animal husbandry to business law, from fine arts to aviation and nuclear physics.

Cities such as Cincinnati, Cleveland and Columbus support some of the finest symphony orchestras and musicians in the country. Toledo has one of the great art museums. Ohio itself is one of the great research centers of the nation. We have an abundance of theatrical talent and other creative and recreational resources.

For many years an agricultural and commercial state with several large cities and some industry, Ohio is now seeing fundamental changes occurring with startling rapidity. The state now ranks second in industrial production and within five to ten years may be first. Four decades may well see Cleveland, Toledo and Youngstown merged into one gigantic metropolis and Dayton merging with Cincinnati. The social and economic structure of the entire Ohio Valley and the Lake Region is in turmoil. The quality and quantity of new leadership needed is enormous and most of that leadership which is needed now must come from adult men and women. At no time in history has it been so important that men and women be adequately and accurately informed and a state-wide educational network can well be the vehicle by which the informational and cultural resources needed, now often confined to a campus or a metropolitan area, can be distributed throughout the state. Such a process is of vital importance to every citizen and his family. Television could bring Ohioans the same opportunities as citizens in Chicago and Pittsburgh where high school and college degrees can be obtained by television or share in the same experience as St. Louis citizens who in city discussion groups, sparked by forum presentations from the educational television station, discuss problems of an exploding metropolitan area. The state which pioneered the age of flight may well pioneer the technology of television in a new development of state-wide adult education.

USES OF A STATE-WIDE EDUCATIONAL TELEVISION NETWORK BY DEPARTMENTS OF STATE GOVERNMENT

The Commission, as directed, also undertook to explore with other state agencies which have or might have needs for state-wide interconnected broadcast facilities, the feasibility of developing a single state-wide system for joint cooperative use.

The staff and consultants therefore conducted more than one hundred and fifty personal interviews and conferences with twenty-four departments and divisions of state government and various elected state officials. These contacts were supplemented by a comprehensive questionnaire, by other correspondence, and by telephone conversations.

Responses indicate joint usage of a single state-wide system of communication would depend on whether the same technical facilities would accom-

modate two separate and differing kinds of communications needs, e.g., public (or semi-public) and private. The facilities required for each, other than common geographical routings and the sharing of certain facilities such as antenna supporting towers, transmitter buildings, and maintenance crews, appear to be quite different. The two differing needs may be described as:

1. *General Broadcast Communications*—Materials for general and specialized public dissemination including staff groups of state departments, divisions and agencies where the health, welfare, and educational needs are involved whether on an emergency, a temporary, or a continuing basis.

2. *Point-to-Point Communications* — Materials for private, restricted, or highly specialized types between or among state agencies, departments, and divisions and various elements of local law enforcement matters, administrative and procedural directives, data processing materials, etc.

In the field of general broadcast communications, many state agencies indicate they can and will utilize an educational television network to reduce costs in dissemination of information, to speed up communications, to develop a more effective and rapid means of informing the Ohio public, for in-service training and upgrading of their own personnel, and for general educational purposes. The director of one state department pointed out:

> . . . the public we serve has a reasonable right to expect from our department a reasonable, responsible, timely, and continuous service at all times, and this service must be geared for the greatest good of the greatest number of people . . . Such public service not only calls for an instantaneous state-wide overall audio and visual education, but it also calls for the possibility of in-service training for our own field employees.

Another director speaking of personnel training programs stated, ". . . a major portion of such training could be channeled through a state-wide educational television network . . ." He further noted:

> There is little need to stress the value of well-conducted educational television for the general public. With people obtaining so much misinformation concerning this subject, there is an increasing need for sound information.

Considerable feeling was expressed in a number of departments about the waste in dollars and cents as well as the loss in hours on the job when it is necessary to bring departmental personnel from all over the state to Columbus or to regional points for briefing or training. It was felt that the educational television network would offer the same opportunities and economies in this as have already been demonstrated by a number of businesses and industries who conduct sales and training meetings via national television networks and by installations such as the U. S. Army Signal Corp television system at Ft. Monmouth and the six-channel educational network system for Washington County at Hagerstown, Maryland.

Departments pointed out that a great deal of the information they must distribute to personnel in the field and to the general public is through printed media and by film. An educational television network, they suggested, could not only enlarge the distribution of this information, but could reduce costs. Many departments maintain shipping, receiving and film editing departments and must duplicate copies of film prints in order to get state-wide distribution. In addition, many of them are called upon to produce educational and public service television programs without adequate facilities or personnel. With access to the resources, production facilities and personnel of a state-wide educational television network, one exposure of film, one appearance by a director, could reach the entire Ohio area.

Therefore the representatives of various departments and agencies of state government see in such a network an opportunity to more effectively and more economically fulfill their responsibilities for public information and public education together with a significant amount of in-service training and personnel upgrading. Unquestionably the network could be well and wisely used for these purposes of general broadcast communication.

As was indicated previously, the matter of point-to-point communications for these same state departments and divisions provides a separate and different kind of problem. The Commission engineering consultants, Jansky & Bailey, suggest that while the geographical routings and many of the transmitter points of *both* services might theoretically be in common, the *types* of services would not. They advise that a further separate study of the point-to-point communication needs would be required before definitive recommendations either as to technical requirements or costs could be made. The Commission concurs in this conclusion. (Further notes on this aspect of the study appear in Appendix IV.)

"VIDEO TAPE RECORDERS SUCH AS THIS PERMIT EDUCATIONAL TELEVISION TO REPEAT PROGRAMS AND REBROADCAST THEM AT ANY TIME."

RECOMMENDATIONS

THE COMMISSION RECOMMENDS

1. That the 104th General Assembly of Ohio enact legislation to create an Ohio Educational Television Network Commission and invest it with the authority and funds to proceed with the establishment of a state-wide educational television network. The Commission recommends also that the Governor of Ohio, with the advice and consent of the Senate, appoint nine Ohio citizens, one of whom shall be the State Superintendent of Public Instruction, to serve as members of this Commission.

It is further suggested that schools and institutions of higher education be appropriately represented on the Commission together with the lay citizenry of Ohio.

2. That the Ohio Educational Television Network Commission be an independent body with full responsibility for carrying out the intent and scope of its authority.

3. That the Commission have the authority to establish its own operating procedures, subject to State and Federal statutes, and have authority to employ such personnel for carrying on the business of the Commission as may be desirable and necessary. It is further recommended that the Commission be attached to the Department of Finance for housekeeping purposes.

4. The Commission shall have the authority to:

a. Own and operate educational transmission and inter-connection facilities, or to contract for inter-connection facilities, for an educational television network.

b. Establish standards for such facilities, whether owned or leased.

(NOTE: It is recommended that preference be given to lease of inter-connection facilities from private agencies engaged in communications services if quality, accessibility and costs are comparable to ownership and maintenance of such facilities.)

c. Execute contracts and other instruments necessary and convenient to carrying out the mandates of the Act creating the Commission.

d. Determine the programs to be distributed on the network; however, the Commission should be given the authority to appoint an Advisory Program Board. Should such a program board be named, the Commission should select several educational representatives and several persons who are managers of educational television stations and production centers in Ohio to serve on the Board.

5. The Commission recommends strict adherence to the non-commercial aspects of "educational television stations" as defined by the Federal Communications Commission.

6. The Commission should plan to utilize resources from and provide resources to private and municipal colleges and universities of Ohio in and through the educational television network.

7. Provision should be made for the production of programs for and by the various state departments and agencies and for use of such programs on the network. These programs should fall into two major categories: public information and education, and in-service training of personnel.

8. The Commission recommends that sufficient funds be appropriated to the Ohio Educational Television Network Commission for the 1961-1963 biennium for implementation and operation of Phase I of the proposed Ohio Educational Television Network as defined in the Jansky & Bailey engineering report.

APPENDICES TO FINAL REPORT

APPENDIX I — Copy made from the ACT, Amended Substitute Senate Bill No. 425, which was enacted by the Ohio General Assembly during 1959, creating and governing The Ohio Interim Educational Television Commission.

APPENDIX II — Specifications for the Engineering Study and the Elaboration on the Total Job to be Done in the Engineering Study. (Approved at March 26, 1960 meeting and attached as Exhibit C to minutes of June 13, 1960 Commission meeting.)

APPENDIX III — Television Broadcasting Equipment—Ohio Universities and Communities. Source: from the engineering report submitted by Jansky & Bailey, Inc. to the Ohio Interim Educational Television Study Commission under date of October 14, 1960. (Pages 31 - 36.)

APPENDIX IV — A Study of the Nature and Scope of Intra-Departmental Communications, Public Information and Education, and Personnel Training Activities of Departments and Agencies of the State of Ohio.

"INTERIOR OF ONE OF THE SEVERAL ETV STUDIOS NOW IN OPERATION IN THE STATE."

APPENDIX I

(AMENDED SUBSTITUTE SENATE BILL NO. 435)

AN ACT
TO CREATE AN INTERIM COMMISSION TO STUDY EDUCATIONAL TELEVISION IN OHIO

Be it enacted by the General Assembly of the State of Ohio:

SECTION 1. There is hereby created the Ohio interim educational television study commission which shall consist of nine members, all of whom shall be citizens of this state. They shall be appointed by the governor and shall serve at his pleasure. The commission shall consist of the following members: the state superintendent of public instruction, one person from a tax-supported institution of higher education, one person from a nontax-supported institution of higher education, one person from the Ohio council on educational television, one person from the Ohio association of broadcasters, and four other persons. The commission is directed to make a study of educational television for this state as indicated in the following sections, and shall submit its final report to the 104th General Assembly not later than January 15, 1961.

SECTION 2. The commission shall establish and maintain an office in Columbus for the duration of the study. Members shall serve without compensation but shall be reimbursed for their actual expenses incurred in the performance of their duties, on vouchers approved by the chairman.

SECTION 3. The commission shall conduct an engineering study, and such other studies as may be necessary, to determine the feasibility, the costs, and the requirements for establishing and providing state-wide educational television network services whereby the educational television programs, station facilities, and channels, now in use or obtainable, may be made available to every Ohio citizen in and out of school.

SECTION 4. The commission in these studies shall also explore with other state agencies, such as the departments of highways, highway safety, and natural resources which have or may have needs for state-wide interconnected broadcasting facilities, the feasibility of developing a single state-wide system of interconnection for joint co-operative use.

SECTION 5. The commission with the approval of the director of finance may employ such technical and other personnel as may be required to carry out the intent and purposes of this act.

SECTION 6. The commission shall advise the superintendent of public instruction with respect to the expenditure of any federal moneys which may be made available to his office for the establishing or improving of educational television broadcasting facilities within the state.

JESSE YODER,
Speaker Pro Tempore of the House of Representatives.
FRANK W. KING,
President Pro Tempore of the Senate.

Passed July 21, 1959.
Approved August 5, 1959.

MICHAEL V. DISALLE,
Governor.

This act is not of a permanent nature and does not require a code sectional number.

OHIO LEGISLATIVE SERVICE COMMISSION
Charles W. Ingler, *Director*

Filed in the office of the Secretary of State at Columbus, Ohio, on the 5th day of August, A.D. 1959.

I hereby certify that the foregoing is a true copy of the enrolled bill.

TED W. BROWN,
Secretary of State.

File No. 289.

Effective November 4, 1959.

APPENDIX II

SPECIFICATIONS FOR THE ENGINEERING STUDY

On March 26, 1960, the Ohio Interim Educational Television Study Commission approved the following points of policy and procedure in state-wide network planning:

1. **Broadcast and interconnection facilities for the general and specialized needs of the Ohio educational establishment on all levels including continuing education should be provided on a state-wide basis.**

2. **Broadcast and interconnection communications facilities for the general and specialized needs of the several agencies of State government should be provided on a state-wide basis.**

3. **State-wide interconnection facilities should provide two-way circuit facilities to permit simultaneous transmission of two types:**

   a. **Educational materials for use by schools, colleges, universities, and the general public.**

   b. **Specialized (and sometimes restricted) information by the several State agencies of government.**

4. **State-wide interconnection plans should provide for common usage wherever possible of the same facilities. Common geographical routing should be followed and all unnecessary duplications of facilities avoided.**

ELABORATION ON THE TOTAL JOB TO BE DONE IN THE ENGINEERING STUDY

According to the intent and charge of the law creating this Commission and interpretation by the Commission, this study should:

a. **Provide a state-wide educational television network which will make available a good and usable signal to every part of the state. The system should provide for passage of broadcast color signal and permit of interconnection with TV networks in states and regions other than Ohio.**

b. **Make possible broadcasting to the entire network of resources from existing production centers and from additional production centers to be determined from further study of resources. (Hence, the need of a reversible interconnection system.)**

c. **Provide multiple audio signals for additional communications for broadcast and/or fault reporting.**

d. **Set up standards for existing stations and for new stations. This should include height, location, and type of towers, power of transmitters, etc., and should include price of alteration of existing facilities and cost of new facilities in "typical" or "average" terms.**

e. **Search out and find additional channels needed. The study should include a search for possible "drop-in" V.H.F. channels.**

f. Make recommendations concerning routing routines and control or pivot center or centers.

g. Search out and find frequencies necessary for a multi-channel, two-way, simultaneous audio system for general, and sometimes restricted, use by state agencies.

h. Make recommendations concerning coordination of these facilities.

The study should take care of existing needs and make provision for additional future services.

APPENDIX III

TELEVISION BROADCASTING EQUIPMENT— OHIO UNIVERSITIES AND COMMUNITIES.

(From Jansky & Bailey Report)

UNIVERSITY OF AKRON (AT AKRON)

Studios:	1—30 feet by 34 feet, also adjacent to campus theater stage.
Cameras:	2—Live camera chains—RCA TK-15 1—Film camera chain—RCA TK-21C
Projection Equipment:	2—Bell & Howell 16 mm projectors 1—Dual drum slide projector—RCA TP-7A
Audio Equipment:	Gates Audio Console—Model SA-40 2 Rek-O-Cut Turntables—Model B-16-H
Lighting System:	Custom
Auxiliary Equipment:	Sync generator—RCA TG-2A Switcher fader—RCA TS-5A Video switcher—RCA TS-2A Master monitor—RCA TM-35 3 Monitrans—RCA TM-41 Tape drive units
Closed Circuit Facilities:	Distribution by cable to 30 rooms in five buildings—Programming four hours daily.

OHIO UNIVERSITY (AT ATHENS)

Studios:	1—14 feet by 42 feet and 1—12 feet by 12 feet.

Cameras:	**2—Vidicon and 2 Image-Orthicon 1—Vidicon Sarkes-Tarzian Film Chain**
Projection Equipment:	**2—16 mm projectors 1—100 slide turret projector**
Audio Equipment:	**Dual channel Gates console Ampex 601 Tape Recorder 2—Turntables**
Lighting System:	**Custom**
Auxiliary Equipment:	**Sync generator Switcher Auricon—Pro 1200, sound on film movie camera and recorder.**
Closed Circuit Facilities:	**Campus hook-up via 5,000 feet of cable serving 27 receivers in 10 buildings. System in use two hours daily.**

BOWLING GREEN STATE UNIVERSITY (AT BOWLING GREEN)

Studios:	**1—25 feet by 35 feet**
Cameras:	**2—Live camera chains—RCA TK-15**
Projection Equipment:	**RCA and Bell & Howell 16 mm film package**
Audio Equipment:	**Control console Ampex 601 Tape Recorder**
Lighting System:	**Custom**
Auxiliary Equipment:	**RCA control room package**
Closed Circuit Facilities:	**Cable throughout one classroom building and cable to second building. Trial usage to date.**

GREATER CINCINNATI TELEVISION EDUCATIONAL FOUNDATION (AT CINCINNATI)

Studios:	**1—50 feet by 120 feet and 1—25 feet by 19 feet.**
Cameras:	**2—Live camera chains—RCA TK-11 2—Live remote chains—GE 2—Film iconoscope chains—RCA**
Projection Equipment:	**2—16 mm projectors—RCA TP-16 2—slide projectors**

Audio Equipment:	**Audio console—RCA BC-6B** **2—Turntables** **Ampex 600 Tape Recorder**
Lighting System:	**Full lighting equipment with Davis Dimmer Panel**
Auxiliary Equipment:	**Ampex Video Tape Recorder** **GPL Kine Recorder** **Complete control room switching facilities** **9 x 12 rear screen Telepro Projector** **Auricon film camera with zoom**
Transmitting Equipment:	**One-kilowatt transmitter—RCA TTU-1B** **1—Slot antenna—RCA TFU 24-DM** **Antenna inside WLW-T tower at 344-foot level.**

OHIO STATE UNIVERSITY (AT COLUMBUS)

Studios:	**1—45 feet by 35 feet** **2—Live camera chains—RCA I.O.**
Cameras:	**2—Live camera chains—Sarkes-Tarzian I.O.**
Projection Equipment:	**2—16 mm film projectors—RCA TP-16F** **1—Gray Telop** **1—Gray Slide Projector** **1—Rear screen projector** **1—Giant view large screen projector**
Audio Equipment:	**Audio console—RCA BC-2B** **2—RCA Turntables** **Mixing Equipment** **Ampex 601 Tape Recorder** **1—Magnecorder**
Lighting Equipment:	**Custom** **1—Light control board—Kliegl**
Auxiliary Equipment:	**Ampex Video Tape Recorder** **GPL Kine Recorder**
Closed Circuit Facilities:	**2—Sarkes Vidicon Cameras in Derby Hall (speech)** **3—Sarkes Vidicon Cameras in Science Bus.** **2—Sarkes Vidicon Cameras in School of Dentistry.** **1—Diamond Power System—Chemical Engineering Building.** **1—Diamond Power System—Research**

	Ophthalomology. 1—Lumicon Orth.—RCA Vidicon— Welding Engineering.
Transmitting Equipment:	12.5 kilowatt RCA UHF Transmitter 1—RCA Slot Antenna—24 gain 550-foot tower

MIAMI VALLEY EDUCATIONAL TELEVISION FOUNDATION (AT DAYTON)

Studios:	1—33 feet by 33 feet
Cameras:	3—Sarkes-Tarzian Vidicon
Projection Equipment:	16 mm Bell & Howell for Film and 35 mm Slide Projector
Audio Equipment:	Control console
Lighting Equipment:	Custom and miscellaneous production equipment
Auxiliary Equipment:	Sarkes-Tarzian—3 camera remote control
Closed Circuit Facilities:	Four classrooms equipped with 14 Sylvania 21-inch receivers and stands.

KENT STATE UNIVERSITY (AT KENT)

Studios:	1—40 feet by 60 feet and 1—30 feet by 35 feet.
Cameras:	2—Live camera chains—RCA TK-15
Projection Equipment:	2—35 mm Slide projectors and 1—16 mm film projector
Remarks:	In process of moving into fine new modern studios. A complete television center with film room, control room and equipment rooms arranged in integrated center of Departments of Broadcasting, Speech, Music, and Drama.

MIAMI UNIVERSITY (AT OXFORD)

Studios:	1—40 feet by 50 feet and 1—30 feet by 30 feet.
Cameras:	5—Live vidicon—Sarkes-Tarzian 1—Film vidicon—Sarkes-Tarzian

Projection Equipment:	**2—16 mm projectors—Bell & Howell** **1—Selectroslide 35 mm Projector**
Audio Equipment:	**Audio control and mixing console** **3—Ampex 601 Tape Recorders** **2—Ampex 351 Tape Recorders** **2—Gates Turntables**
Lighting Equipment:	**Custom**
Closed Circuit Facilities:	**Interchangeable with WMUB-TV** **6 rooms in Harrison Hall** **5 rooms in Laws Hall** **1 room in Upham Hall** **5 rooms in Radio-TV Center**
Auxiliary Equipment:	**Ampex Video Tape Recorder** **Video switching and fading equipment**
Transmitting Equipment:	**One-kilowatt Transmitter—** **RCA TTU-1B** **Six-section Slot Antenna—** **RCA TFU-6A** **320-foot Self-Supporting Tower**

GREATER TOLEDO EDUCATIONAL TELEVISION FOUNDATION (AT TOLEDO)

Studios:	**1—30 feet by 40 feet and 1—20 feet by 30 feet.**
Cameras:	**2—Live cameras—Sarkes-Tarzian** **1—Film chain**
Projection Equipment:	**2—16 mm Bell & Howell** **1—Sarkes-Tarzian 35 mm Slide Projector**
Audio Equipment:	**1—Gates Console** **1—Turntable**
Lighting Equipment:	**Custom**
Auxiliary Equipment:	**Camera Control equipment**
Closed Circuit Facilities:	**No operation—Training and Broadcast Usage only.**
Transmitting Equipment:	**1—GE 100-watt UHF Transmitter. Antenna on Administration Building. Broadcasting to in-school receivers with Board of Education co-operation.**

CENTRAL STATE COLLEGE (AT WILBERFORCE)

Remarks: Equipment on order for supplementing Science course demonstrations using four classroom monitors.

OHIO WESLEYAN UNIVERSITY (AT DELAWARE)

Remarks: (List to be developed.)

APPENDIX IV

A STUDY OF THE NATURE AND SCOPE OF INTRA-DEPARTMENTAL COMMUNICATIONS, PUBLIC INFORMATION AND EDUCATION, AND PERSONNEL TRAINING ACTIVITIES OF DEPARTMENTS AND AGENCIES OF THE STATE OF OHIO.

As the Commission staff and consultants went from one department of State government to another to discuss their needs for improved communications facilities in carrying on their work, it became increasingly evident that some systematic form for tabulation of the range of communications activities should be developed. A number of department directors suggested, out of their own interest in the study and their desire to have access to more up-to-date and efficient communications devices, that a detailed questionnaire be developed. Only one department director expressed reluctance in regard to a questionnaire; and, subsequently, this department was not included in the study.

After much staff work, a preliminary form was developed. This form was checked with statisticians, research personnel, and representatives of several departments, and was revised several times before it was finally put into the form used. It was a lengthy questionnaire, fifteen pages long, and designed to cover all major types of communications used in carrying on the intra-departmental (as opposed to service) functions of each department. It was decided, in addition, to study the public information and public education functions of each department.

Because of the specialized and fairly limited uses of radio communication systems, by only four departments of State government, information concerning these systems was collected by the engineering consultants and was not covered in the questionnaire.

(For a detailed analysis of the radio systems in use by State departments and agencies, see the Jansky and Bailey Engineering Study, Pages 42 to 47, inclusive.)

It was agreed from the beginning that to do an absolutely accurate and authoritative study of the scope planned would require a minimum of twelve months and the services of several men working full-time. It was also agreed, however, that, for the purposes of this study, estimates and approximations were more than adequate to give a broad, rather than definitive, view of the scope of communications being carried on in conducting the intra-departmental business of the State. Furthermore, it was the intent of the study to provide an introduction to the scope of communications in

departments with widely dispersed workers as opposed to those departments which were largely centered in Columbus.

The purpose of the study was to give an indication of scope as basis for showing need for improvement of communications facilities rather than to give a complete inventory of communications carried on as a basis for recommending specific communications facilities and systems for use of State departments and agencies. It was felt that if the questionnaire did only that, it would have served its purpose.

Prior to the mailing of the questionnaires, a call was made in person or by telephone to every State department director and division head to be included in the study. As indicated above, with only one exception full cooperation was pledged in every case. A mature and experienced graduate student was employed for a period of approximately two months to work on the collection and tabulation of the information, and his services were made available to any department or division requesting them.

Immediately upon receipt of the first copy of the study, departments began requesting additional copies for use of branches and divisions within the departments—50 copies, 75 copies, 100 copies. The cooperation of the departments in this study was most gratifying. Of the 20 departments asked to cooperate in the study, only one failed to complete the questionnaire.*

There is no doubt that, in spite of the fact that replies were asked for and given in "estimates," this is the most thorough study ever made in any state of the scope of communications used in carrying on the "operational" business of a state.

These questionnaires are to be filed for further analysis and use when additional study of improved communications facilities for State departments and agencies is authorized by the General Assembly.

Some conclusions which may be drawn from the study are:

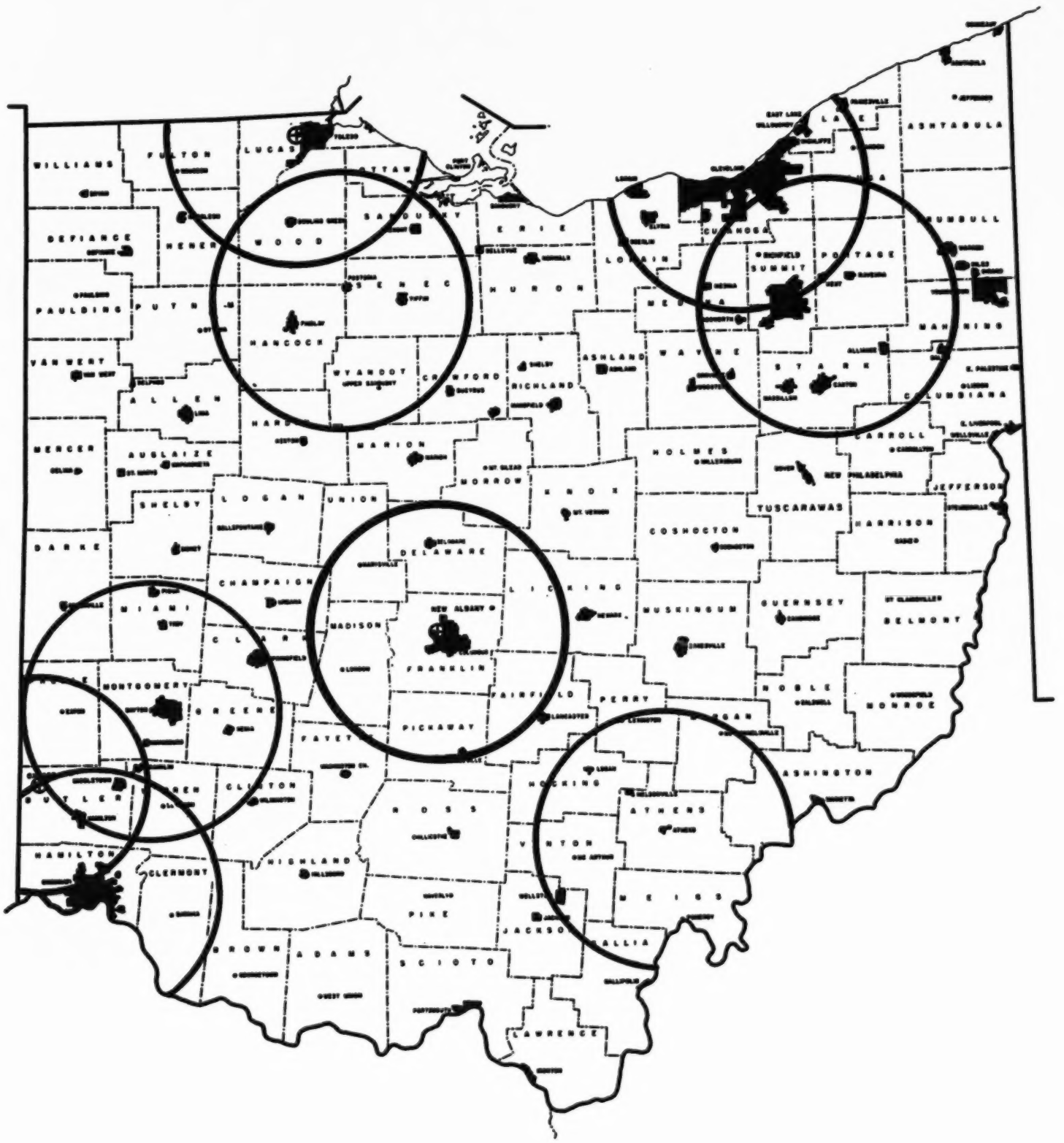
1. Great waste in money and manpower resulting from reliance upon the traditional media of communications, letters, telephone, telegraph, and bulk printing, could be eliminated if a modern system of simultaneous, two-way, multi-channel, voice and picture communications were available to all State agencies and departments for intra-departmental business.
2. Many lives and much property would be saved each year, but especially in times of emergency, if a modern communications system were immediately available to State departments.
3. Much of the costly and often limited and inadequate in-service training of personnel and much of the public information, public education work of departments could be improved, made available to larger numbers, and done more economically through an improved system of State-wide communications.

* Departments participating in the study: Adjutant General, Agriculture, Agricultural Experiment Station, Attorney General, Auditor, Education, Finance, Health, Highways, Highway Safety, Liquor Control, Natural Resources, Public Relations, Public Utilities, Public Welfare, Public Works, Treasurer, Unemployment Compensation, and Workman's Compensation.

EXISTING EDUCATIONAL TELEVISION BROADCASTING STATIONS ON THE AIR IN OHIO 1961

FIG. 1

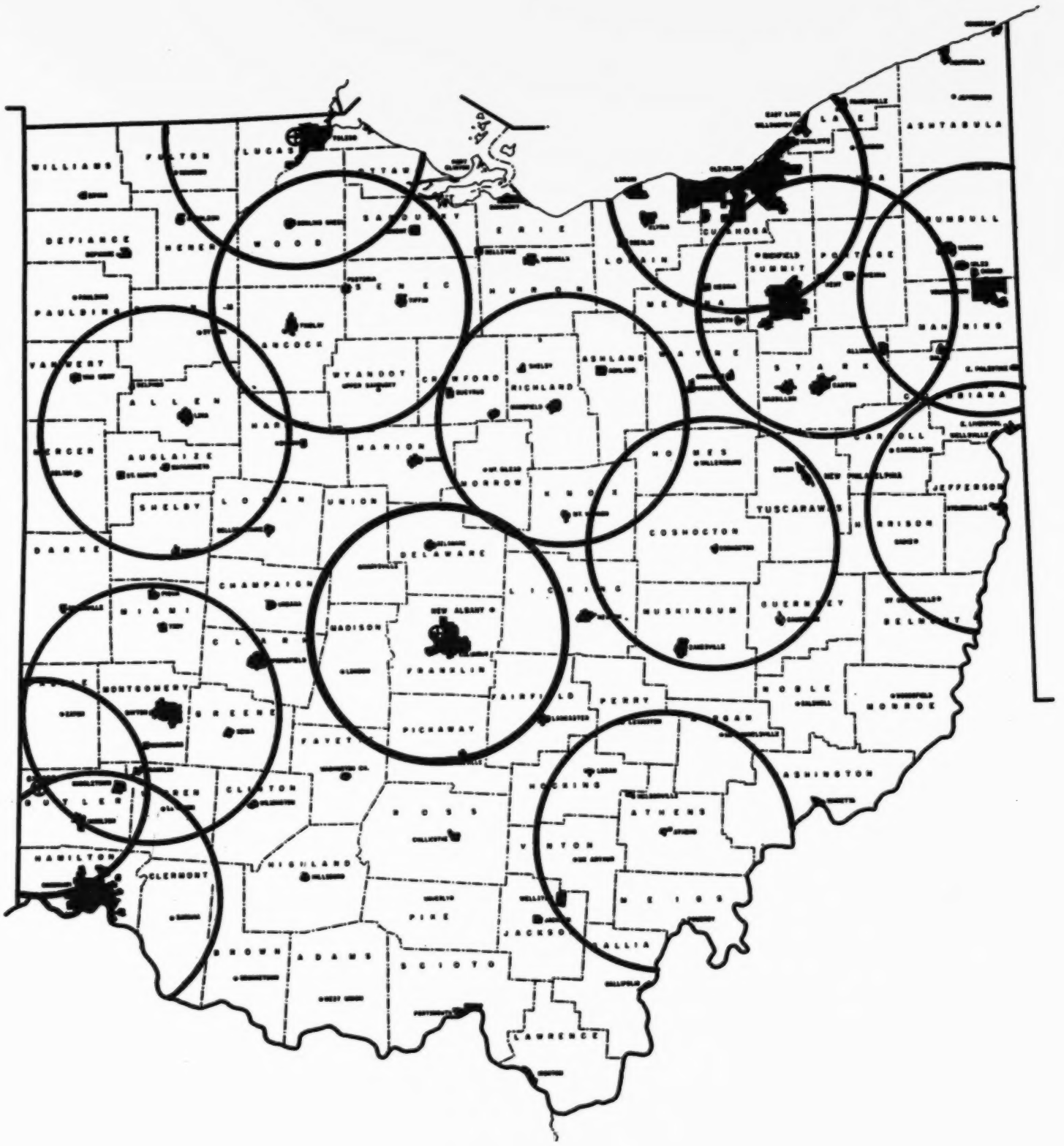
THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION



PHASE I

FIG. 2

THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION



PHASE I

PHASE II

FIG. 3

THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION

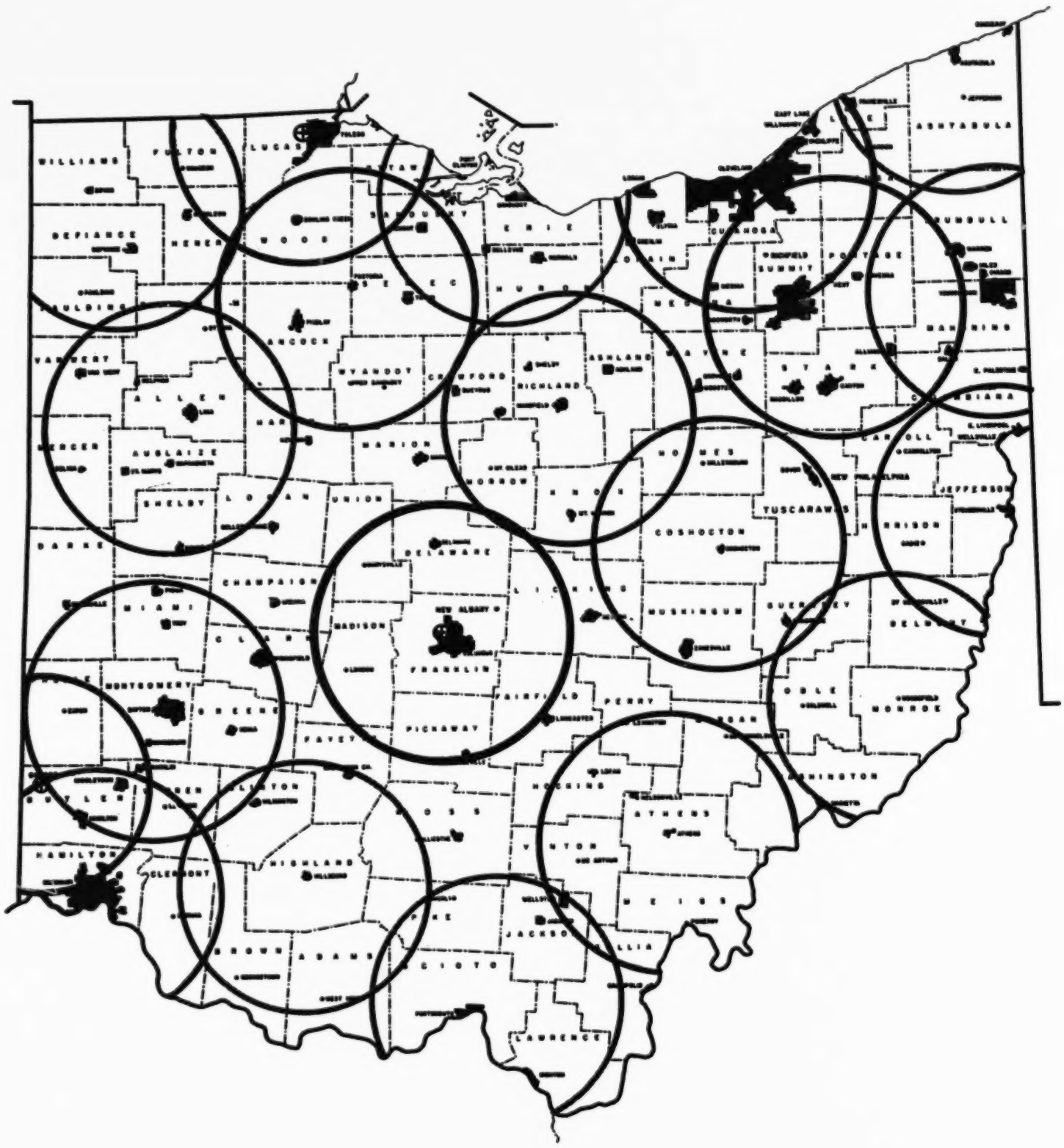
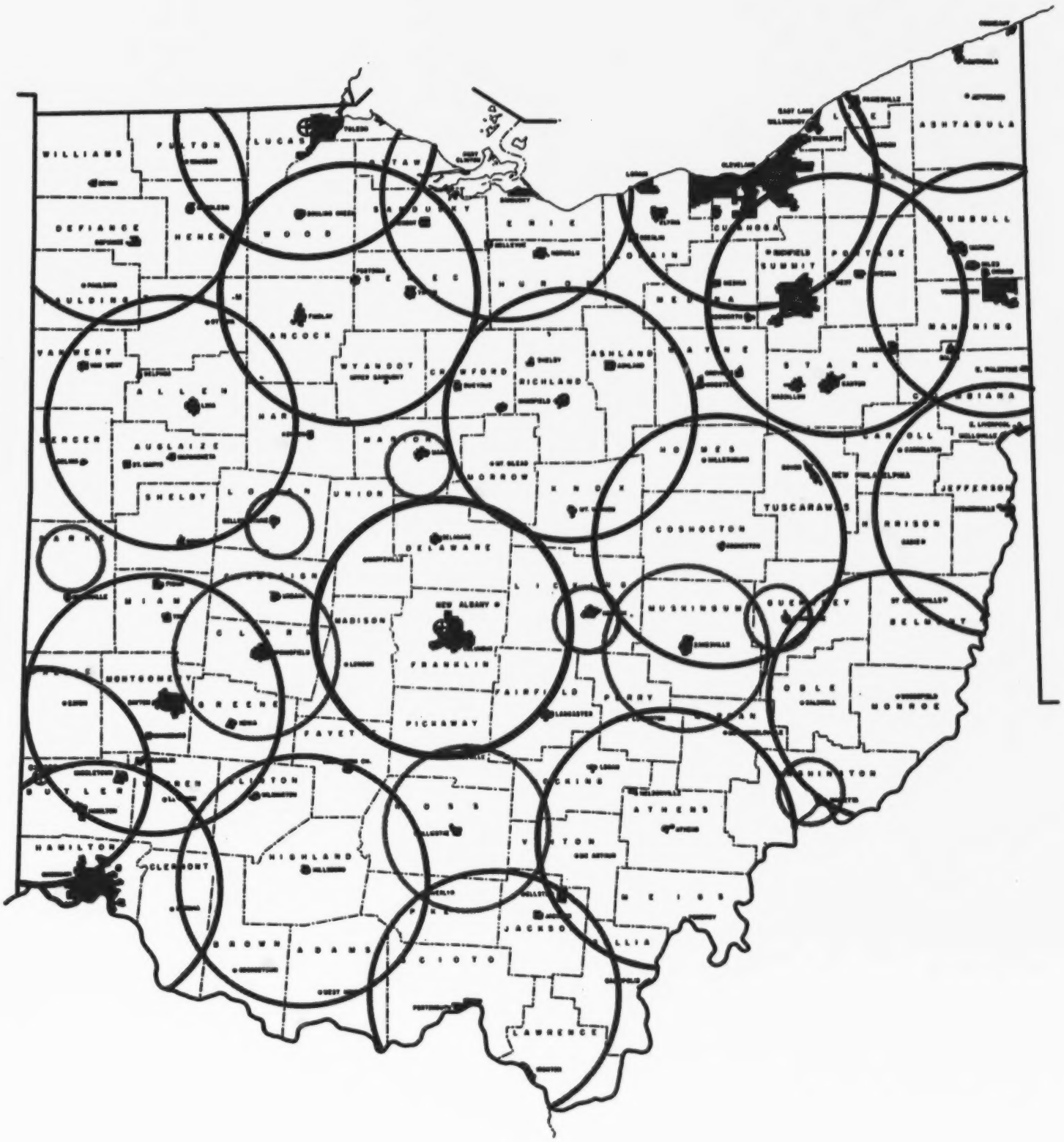


FIG. 4
THE OHIO INTERIM EDUCATIONAL TELEVISION
STUDY COMMISSION



PHASE I

PHASE II PHASE III

PHASE IV

FIG. 5

THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION

FIG. 6
ADDITIONAL MICROWAVE LINKS REQUIRED FOR STATE-WIDE ETV COVERAGE

THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION

FIG. 7
MICROWAVE DISTRIBUTION SYSTEM REQUIRED TO INTERCONNECT THE NINE PHASE I ETV STATIONS

THE OHIO INTERIM EDUCATIONAL TELEVISION STUDY COMMISSION

THE OHIO EDUCATIONAL TELEVISION NETWORK COMMISSION
1963
Educational Television in Ohio

The Commission

The 104th General Assembly of the State of Ohio enacted a Bill in October, 1961, to establish an Ohio Educational Television Network Commission. The Commission was created as an independent agency of the State government.

The Commission has been directed to establish a network of educational television transmitting stations in the state, including the construction of necessary new stations and interconnecting all the stations in the network. The Commission will develop an operations plan for the network, and will supervise the development and scheduling of programs on the network always strictly adhering to the non-commercial aspects of educational television stations as defined by the Federal Communications Commission. The network will serve the educational needs of the citizens of the state, and when completed will make educational television programs and facilities available to all Ohioans in and out of school.

The Commission is empowered to own and operate transmission facilities and interconnection facilities or contract for interconnection facilities. It will establish standards for interconnection facilities. It may enter into agreement with non-commercial educational television broadcasting stations for the transmission of programs on the network live or by tape or film. The Commission may enter into agreements with non-commercial educational television production centers and broadcasting stations for the production and use of educational television programs to be distributed through the Ohio ETV Network.

The Commission, appointed by the Governor, is comprised of nine members, one of whom must always be the state superintendent of public instruction. Members are appointed for four-year terms. The Commission elects its own officers including chairman, vice-chairman and executive committee.

The administrative functions of the Commission are directed by an Executive Secretary. Other administrative personnel will be required as the program develops. The Commission retains the services of an engineering consultant firm and legal counsel.

Members and officers of the Commission are as follows:

Richard B. Hull, Chairman and member of the Executive Committee; Director of Telecommunications, The Ohio State University

E. E. Holt, Statutory member and member of the Executive Committee; State Superintendent of Public Instruction

Allan H. Land, Vice Chairman and member of the Executive Committee; General Manager, WHIZ-TV, Zanesville

George C. Biersack, member of the Executive Committee; Chairman, Department of Speech, University of Dayton; Executive Director, Miami Valley Educational Television Foundation

Walter E. Bartlett, Vice President and General Manager, WLWC, The Crosley Broadcasting Corporation, Columbus

Roger K. Burke, Director of Business Affairs, Newark Board of Education

Robert McKell, President and General Manager, Chillicothe Telephone Company

L. C. Michelon, Director of Public Affairs, Republic Steel Corporation; trustee of Educational Television Association of Metropolitan Cleveland

Robert D. Thomas, Sales Director, WBNS-TV, Columbus

The present Commission staff is composed of the Executive Secretary, E. H. Gillis, Jr., and the Secretary, Bette Wallach.

The Interim Study Commission

Impetus for the establishment of the Commission was derived from early studies of the Ohio Council on Educational Television and the Report of the Ohio Interim Educational Television Study Commission submitted in February of 1961. Concurrent with the Interim Commission Study and Report was the survey by the Jansky and Bailey engineering firm in Washington, D. C. This firm was employed to determine the engineering aspects pertaining to the development of an educational television network system in this state.

The Jansky and Bailey Survey proposed development of the Ohio ETV Network in four phases, each requiring approximately two years to complete. Thus the entire network building program and interconnection facilities installation would require some eight years to complete.

The Jansky and Bailey Survey suggested building the network from the existing four (1960) ETV stations in the state into an ETV complex which would include twenty-nine transmitting stations of various types and eleven producing studios. The plan was designed to be flexible allowing for modifications to better the system as improvements in electronic science and educational philosophies grow and change. The developmental stages of the network are planned in full consideration of building facilities to provide service for the greatest populace first, and therefore in the geographical areas of the state adjacent or within the major population areas.

The entire system is in the Ultra High Frequency range (UHF). All Very High Frequency (VHF) channels in Ohio are occupied by commercial television stations.

The Ohio ETV Network

Phase One

Ten UHF channels are now reserved in Ohio for non-commercial broadcasting. Six are operative and part of the basic Phase One complement of the ETV network. The ten transmitting plants will be associated with program production centers for broadcast of educational programs into schools and to the general public. Transmitting facilities will probably be shared at two locations. These transmitting plants and production studios are to be interconnected by microwave in order that programs or instructional material originating at any one of the production centers would be received and rebroadcast at the other transmitting centers. The Phase One transmitting plants are not sufficient to provide an educational television service to all portions of the state. They, however, do reach many areas of major population concentration in the state.

The present (July, 1963) ETV stations already existing with both transmitting plants and program-producing facilities are:

Stations	Channel	Owner
WOSU-TV, Columbus	34	Ohio State University
WCET, Cincinnati	48	Greater Cincinnati Television Educational Foundation
WMUB-TV, Oxford	14	Miami University
WOUB-TV, Athens	20	Ohio University
WGTE, Toledo	30	Greater Toledo Educational Television Foundation
WGSF, Newark	28	Newark Board of Education *

*The Newark Board of Education showed marked enthusiasm for television. They acquired a Construction Permit for Channel 28 and their transmission began in the Spring of 1963. Originally proposed as a translator station in Phase Four, WGSF will operate on a 1 kilowatt. Present programming repeats the WOSU-TV schedule with limited local production. Studio production facilities are being expanded at present.

The remainder of the Phase One stations to be constructed are:

Akron-Kent	Channel 55	(shared transmitter)
Bowling Green	Channel 70	(CP granted June 14, 1963)
Cleveland	Channel 25	
Dayton-Xenia	Channel 16	(shared transmitter)

All transmitting stations in Phase One are recommended for completion to full standard power, i.e., equipped with a 12 kw transmitter and approximately

200 kw Effective Radiated Power (ERP), and 600 foot tower (excepting Newark, note above). WOSU-TV and WCET are the only existing base stations at full power and minimum standards.

All state universities are included in Phase One along with transmitting stations and studios owned by non-profit foundations.

Upon completion of Phase One transmitting stations and studios, and their subsequent microwave interconnection, programming on the Phase One portion of the network system may ensue. Thus the intention to provide major population areas of the state with educational television will have been accomplished.

The Phase One producing studios will provide a substantial portion of the network programming, not only during the Phase One operation, but also after completion of the entire network.

Three additional Phases are necessary for the development of state-wide Ohio educational television coverage. The additional transmitting stations in these three phases will be interconnected to the basic programming portion of the network by microwave interconnection or, in the case of television translator stations, by off-air pickup means, boosting or repeating the signals of the Phase One stations throughout the remainder of the state. The stations in the latter phases will not have the responsibility of program origination, but will repeat the material originated at one of the basic eleven programming centers. Of course, as interest grows and needs are indicated, additional programming centers may be added.

Phase Two

Additional full-power transmitting stations (12 kw transmitters, 200 kw ERP) in other portions of the state representing populous areas are to be constructed in proximity to the following cities:

Coshocton
Lima
Mansfield
Steubenville
Youngstown

Phase Three

The same type transmitting installations are required as for those stations in Phase Two with the locations of these additional facilities as follows:

Ashtabula
Bryan
Hillsboro
Portsmouth
Sandusky
Woodsfield

Phase Four

Nine additional transmitting stations are to be established -- three with 1,000 watt transmitters and approximately 15 kw ERP to serve the densely populated valley area locations of:

Chillicothe
Springfield
Zanesville

and five with 100 watt translator transmitter systems (approximately 1,000 watts ERP) for off-the-air rebroadcast of ETV signals into the areas around:

Ansonia
Bellefontaine
Cambridge
Marietta
Marion

Projects eligible for grants under provisions of the Educational Television Facilities Act, Public Law 87-447, signed into law May 1, 1962, are being developed by the various Phase One stations. Applications for grants will be made as quickly as possible.

Offices of the Ohio ETV Network Commission are located at:

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